

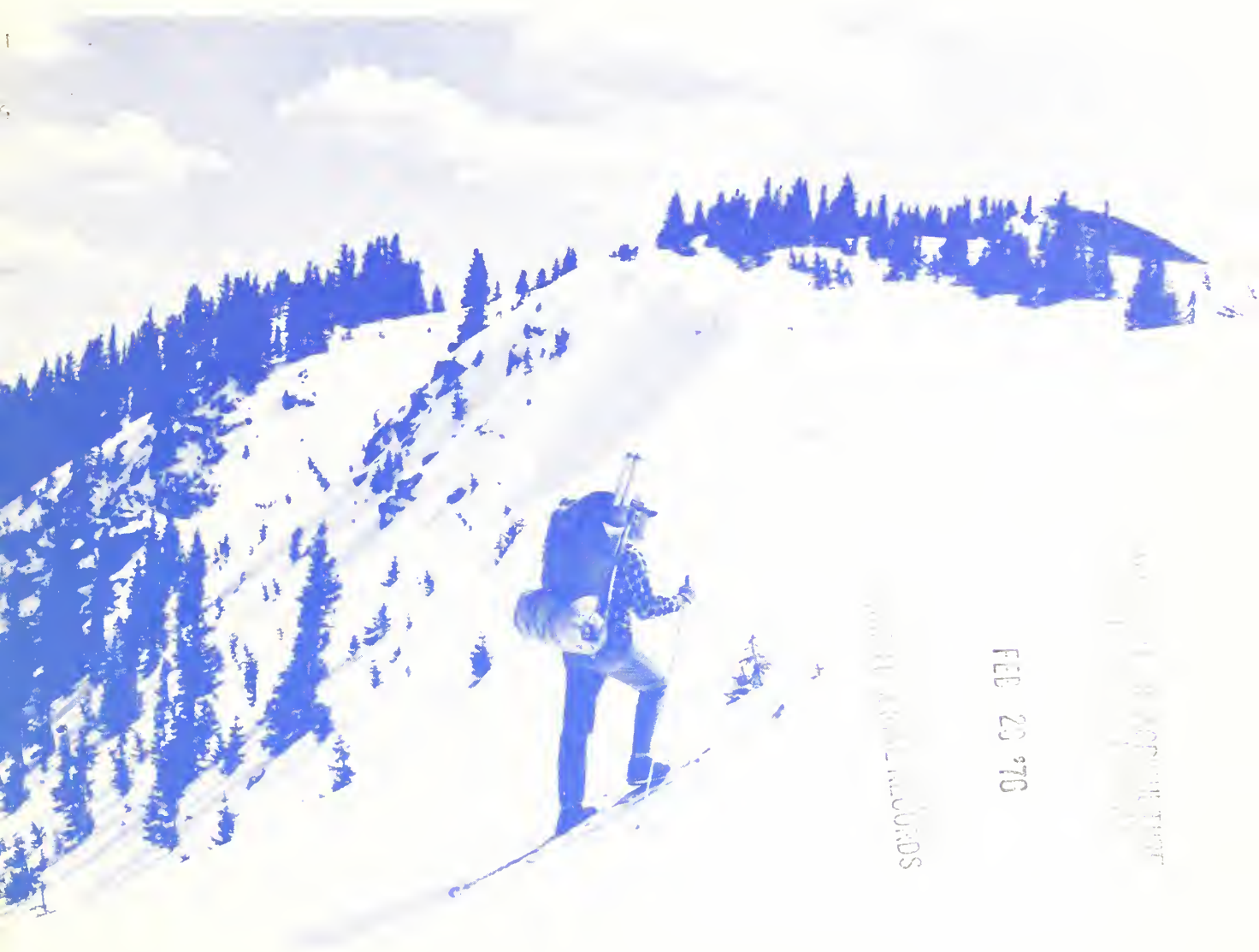
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WATER SUPPLY OUTLOOK FOR WESTERN UNITED STATES

Including Columbia River Drainage in Canada



U.S. GOVERNMENT PRINTING OFFICE

FEB 20 '76

U.S. GOVERNMENT PRINTING OFFICE

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with
CALIFORNIA DEPARTMENT of WATER RESOURCES
and
BRITISH COLUMBIA DEPARTMENT of
LANDS, FORESTS and WATER RESOURCES

AS OF
FEB. 1, 1976

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SURVEYOR ENROUTE TO THE MT. BALDY ARIZONA SNOW COURSE
SCS PHOTO AZ-5460

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 111, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

| STATE | ADDRESS |
|--------------------|---|
| Alaska | 204 E. 5th. Ave., Room 217, Anchorage, Alaska 99501 |
| Arizona | 6029 Federal Building, Phoenix, Arizona 85025 |
| Colorado (N. Mex.) | P. O. Box 17107, Denver, Colorado 80217 |
| Idaho | Room 345, 304 N. 8th. St., Boise, Idaho 83702 |
| Montana | P. O. Box 98, Bozeman, Montana 59715 |
| Nevada | P. O. Box 4850, Reno Nevada 89505 |
| Oregon | 1220 S.W. Third Ave., Portland, Oregon 97204 |
| Utah | 4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138 |
| Washington | 360 U.S. Court House, Spokane, Washington 99201 |
| Wyoming | P. O. Box 2440, Casper, Wyoming 82601 |

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR WESTERN UNITED STATES

Including Columbia River Drainage in Canada

ISSUED

FEBRUARY 1, 1976

The Soil Conservation Service coordinates snow surveys conducted by its staff and many cooperators, including the Bureau of Reclamation, Corps of Engineers, Forest Service, National Park Service, NOAA, National Weather Service, Geological Survey, and other Federal Agencies, Departments of State Government, Irrigation Districts, Power Companies, and others.

The Department of Water Resources coordinates snow surveys in California.

The Water Resources Service, Department of Lands, Forests, and Water Resources directs snow surveys in British Columbia.

This report was prepared by the Water Supply Forecasting Unit, Engineering Division, Soil Conservation Service, from data supplied by Snow Survey Supervisors of the Soil Conservation Service in the States of Alaska, Arizona, Colorado and New Mexico, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

Data from California was supplied by the Chief, Water Supply Forecast and Snow Survey Unit, Department of Water Resources.

Data from British Columbia was supplied by the Chief, Hydrology Division, Water Investigations Branch, Department of Lands, Forests and Water Resources.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
R.M. DAVIS, ADMINISTRATOR

M7-L-22030B

USDA-SCS-PORTLAND OREG. 1975

WATER SUPPLY OUTLOOK

1976 SNOWMELT SEASON
FEBRUARY 1, 1976

THE WATER SUPPLY OUTLOOK IS FAIR IN THE SOUTHERN PORTION OF THE WESTERN STATES, AND GOOD OVER MOST OF THE NORTHWEST. RESERVOIR STORAGE IS GOOD TO EXCELLENT AND WILL EASE THE SHORTAGES IN SOME RUNOFF DEFICIENT AREAS. CALIFORNIA, NEVADA AND ARIZONA WATER USERS MAY EXPERIENCE SHORTAGES WHERE CARRYOVER RESERVOIR STORAGE IS NOT AVAILABLE.

Snowpack conditions throughout the west generally are poorer in the southern regions and better in the north. South of a line from the California-Oregon border extending eastward to the Colorado-Wyoming border the accumulated snowpack is below the February 1 normal. In the Sierra Nevada the snowpack is one of the lowest on record.

To the north of that line the snowpack is normal or above with heavy accumulations in portions of Southwestern Montana and Northwest Wyoming. Water supplies in this region will be average or above in most watersheds.

The British Columbia Water Resources Service, Department of Lands, Forests and Water Resources, reports that the snowpack on the upper Columbia River and its tributaries is above normal, except on the Kootenai River where below average amounts were measured. Snowmelt runoff should equal or exceed the 15-year average from most streams in this vicinity.

The upper Snake River is expected to flow at a rate above average, however, most central Idaho rivers flowing into the Snake are forecast to be under their norm. The Big Wood and Big Lost Rivers are expected to discharge snowmelt runoff at a rate of only two-thirds of average. The lower Columbia River is forecast to yield an average quantity, with most tributary streams also flowing at their normal rates.

Runoff in the upper Missouri Basin is forecast to be 10 to 20 percent above average in most drainages south of the main stem. To the north, the Milk and Maria Rivers are expected to be below normal. The Yellowstone River watershed has one of the heavier snowpacks and snowmelt runoff will be well above average.

The North and South Platte Rivers both have snowpacks slightly above normal. Runoff from several central Wyoming streams is expected to reach twice the normal volumes. Elsewhere in the area streamflows will be within 10 to 15 percent of normal spring and summer rates.

Below average snowpacks have accumulated on the headwaters of the Arkansas and Rio Grande river basins. Snowmelt runoff yields will be less than normal, however, reservoir storage along both river systems is good and will help supplement the below average flows.

The Upper Colorado-Green River watersheds have near average snowpacks and forecasts of snowmelt runoff are near the 15-year normal. Conditions get progressively drier downstream in the basin. Inflow to Lake Powell is forecast to be only 81 percent of the April-July average. However, there is currently 238 percent of the normal storage in the reservoir, so irrigation supplies will be near normal.

In the Great Basin of Utah and Nevada the snowpack is quite variable. The streams flowing from the east slope of the Sierra Nevada will yield much less than their normal rates. In Utah, however, the Weber river basin has 107 percent of its usual February 1 snowpack.

The California Department of Water Resources reports that water supply potentials are only fair at this time. Some economic loss to agriculture was experienced during January due to insufficient precipitation during the last three months. However, no major water supply deficiencies are foreseen where users have access to carryover reservoir storage, which was about normal on February 1 throughout the state.

MISSOURI BASIN

Snow cover is quite variable ranging from below average along the Montana-Idaho border in the Red Rock River drainage and in the Marias River headwaters to near record amounts along the Continental Divide

SUMMARY OF SNOW WATER EQUIVALENT MEASUREMENTS

| MAJOR BASIN AND SUB - WATERSHED | WATER EQUIVALENT IN PERCENT OF: | | MAJOR BASIN AND SUB - WATERSHED | WATER EQUIVALENT IN PERCENT OF: | |
|---------------------------------------|------------------------------------|---------|---|------------------------------------|---------|
| | LAST YEAR | AVERAGE | | LAST YEAR | AVERAGE |
| MISSOURI BASIN | | | SNAKE BASIN | | |
| Jefferson | 123 | 114 | Snake above Jackson, Wyo. | 167 | 134 |
| Madison | 151 | 120 | Snake above Hiese, Idaho | 149 | 125 |
| Gallatin | 120 | 118 | Snake abv. American Falls Res. | | |
| Missouri Main Stem | 108 | 112 | Henry's Fork | 160 | 108 |
| Yellowstone | 147 | 126 | Southern Idaho Tributaries | 90 | 100 |
| Shoshone | 145 | 164 | Big and Little Wood | 115 | 68 |
| Wind | 120 | 121 | Boise | 110 | 92 |
| North Platte | 106 | 106 | Owyhee | 60 | 90 |
| South Platte | 89 | 108 | Payette | 107 | 91 |
| | | | Malheur | 95 | 110 |
| | | | Weiser | 99 | 78 |
| | | | Burnt | 110 | 110 |
| | | | Powder | 100 | 100 |
| | | | Salmon | 107 | 95 |
| | | | Grande Ronde | 105 | 110 |
| | | | Clearwater | 105 | 108 |
| ARKANSAS BASIN | | | LOWER COLUMBIA BASIN | | |
| Arkansas | 84 | 94 | Yakima | 75 | 86 |
| Cucharas-Purgatoire | 79 | 93 | Umatilla | 115 | 135 |
| | | | John Day | 110 | 105 |
| | | | Deschutes - Crooked | 102 | 112 |
| | | | Hood | 105 | 95 |
| | | | Willamette | 110 | 105 |
| | | | Lewis | 84 | 60 |
| | | | Cowlitz | 80 | 79 |
| RIO GRANDE BASIN | | | PACIFIC COASTAL BASIN | | |
| Rio Grande (Colo.) | 66 | 71 | Puget Sound | 89 | 100 |
| Rio Grande (New Mexico) | 85 | 94 | Olympic Peninsula | 86 | 70 |
| Pecos | 81 | 120 | Umpqua - Rogue | 85 | 105 |
| | | | Klamath | 100 | 100 |
| | | | Trinity | 85 | 65 |
| COLORADO BASIN | | | CALIFORNIA | | |
| Green (Wyo.) | 116 | 105 | CENTRAL VALLEY | | |
| Yampa - White | 82 | 87 | Upper Sacramento | 75 | 65 |
| Duchesne | 76 | 76 | Feather | 65 | 40 |
| Price | 95 | 96 | Yuba | 65 | 50 |
| Upper Colorado | 87 | 94 | American | 65 | 50 |
| Gunnison | 76 | 81 | Mokelumne | 60 | 40 |
| San Juan | 64 | 69 | Stanislaus | 55 | 40 |
| Dolores | 78 | 87 | Tuolumne | 65 | 45 |
| Virgin | 65 | 46 | Merced | 65 | 45 |
| Gila | 68 | 52 | San Joaquin | 65 | 45 |
| Salt | 118 | 79 | Kings | 60 | 45 |
| Verde | 122 | 93 | Kaweah | 60 | 40 |
| | | | Tule | 40 | 15 |
| | | | Kern | 50 | 25 |
| GREAT BASIN | | | Data for California Watersheds supplied by Dept. of Water Resources, and for British Columbia Watersheds by Dept. of Lands, Forests and Water Resources. | | |
| Bear | 96 | 94 | Average is for the 1958-72 period. California averages are for the period 1931-70. Based on Selected Snow Courses determined by distribution within the Basin, Length of Record and Re- petitive Monthly Measurement Schedules. | | |
| Logan | 100 | 91 | | | |
| Ogden | 82 | 82 | | | |
| Weber | 86 | 107 | | | |
| Provo - Utah Lake | 94 | 99 | | | |
| Sevier, Upper | 74 | 52 | | | |
| Sevier, Lower | 80 | 90 | | | |
| Walker - Carson | 38 | 22 | | | |
| Tahoe - Truckee | 40 | 25 | | | |
| Humboldt | 77 | 95 | | | |
| Lake Co. (Oregon) | 95 | 75 | | | |
| Harney Basin (Oregon) | 85 | 105 | | | |
| Owens (California) | 25 | 10 | | | |
| UPPER COLUMBIA BASIN | | | | | |
| Columbia (Canada) | 103 | 116 | | | |
| Kootenai | 89 | 87 | | | |
| Clark Fork | 110 | 112 | | | |
| Bitterroot | 107 | 121 | | | |
| Flathead | 101 | 91 | | | |
| Spokane | 86 | 91 | | | |
| Okanogan | 93 | 107 | | | |
| Methow | 94 | 92 | | | |
| Chelan | 106 | 124 | | | |
| Wenatchee | 87 | 92 | | | |

in the vicinity of Butte, Montana. In the Big Horn and Absaroka ranges of Wyoming as well as other portions of the Yellowstone drainage the snowpack has reached near record levels for February 1.

The North Platte snowpack is slightly above normal throughout the watershed. An area of very heavy snowpacks was measured to the north of the Laramie Peak area. The South Platte river basin is also variable, with near average amounts accumulated on the main stem, but only three-fourths of normal on Boulder Creek.

Soil moisture in Montana is generally good while in Colorado the subsurface conditions are poor to fair. This condition will result in more snowmelt water soaking into the soils than is usual in Colorado, whereas losses to the soil in Montana will be near average.

Streamflow forecasts are generally above the 15-year normal in Montana and Wyoming. The Clarks Fork, Shoshone, Yellowstone and Tongue Rivers are forecast to flow at rates well above their averages. However, the Marias and Milk Rivers in Northern Montana are expected to discharge below normal quantities.

The North Platte River is forecast to discharge 90 percent of its norm into Seminoe reservoir. However, storage in Seminoe and Pathfinder reservoirs is excellent, so supplies should be adequate during the irrigation season. Additionally, some downstream tributaries are heavily snowladen and expected to flow at nearly double their usual rates. Most other streams in the Wyoming portion of the Missouri drainage are forecast to yield within 10 percent of their average amounts.

Reservoir storage is excellent. In Montana the impounded water as of the last of January was about 130 percent of normal. In Wyoming the storage on the Wind River was 106 percent of average and the North Platte system contained 170 percent of its average. The South Platte reservoirs held 105 percent of their normal amount.

ARKANSAS BASIN

Snowpack conditions throughout the basin are only slightly below the 15-year average, currently standing at 95 percent of the February 1 normal. The Cucharas and

Purgatoire drainages have about the same snow conditions as the main stem of the Arkansas.

Warm dry conditions in the valleys have resulted in relatively dry soil moisture conditions. Reservoir storage is also poor. John Martin is nearly empty, while Conchas reservoir contains only 45 percent of its normal for this date.

Above normal precipitation during the second half of the snow accumulation season will be necessary if the spring and summer water supply is to be near average.

RIO GRANDE BASIN

The Rio Grande basin snowpack is generally below normal. On the headwaters in Southern Colorado the current accumulation is only 71 percent of average, while in Northern New Mexico the pack is just slightly below average. The Red River and Pecos drainages are notable exceptions, however, with above normal snow. On the Red River the February 1 snowpack is 40 percent above normal.

Soil moisture is only fair, and with a below normal snowpack, spring and summer water supplies could be short unless storms are heavier than usual during the remainder of the winter.

Reservoir storage is good, however, with Elephant Butte impounding 155 percent of its usual February 1 quantity and other reservoirs in the system with a combined figure of 280 percent of average.

COLORADO BASIN

Over the entire Colorado basin the snowpack is about 90 percent of the February 1 normal. The Green River in Wyoming has the best snow condition, with 105 percent of average. Elsewhere the snowpack is quite variable, with light accumulations on the Duchesne and Virgin Rivers in Utah where the current pack is 76 and 46 percent of normal, respectively. Other low snow areas include the San Juan drainage in Colorado and the Gila in Arizona with 69 and 52 percent of average.

The Green and Little Snake Rivers flowing out of Wyoming and Colorado are about the

SELECTED STREAMFLOW FORECASTS FEBRUARY 1, 1976

| STREAM AND STATION | FORECASTS THIS YEAR | | Forecast Period | Last Year's Flow In (1,000 A.F.) |
|---|-------------------------|-----------------------|-----------------|--|
| | Flow In (1,000 A.F.) | Percent of Average | | |
| SASKATCHEWAN | | | | |
| St. Mary near Babb, Montana <u>1/</u> | 475 | 97 | April-Sept. | |
| UPPER MISSOURI | | | | |
| Beaverhead near Grant, Montana <u>2/</u> | 167 | 115 | April-Sept. | 295 |
| Big Hole near Melrose, Montana | 950 | 127 | April-Sept. | |
| Madison near Grayling, Montana <u>3/</u> | 560 | 117 | April-Sept. | 529 |
| Gallatin near Gateway, Montana | 630 | 119 | April-Sept. | |
| Sun at Gibson Dam, Montana <u>4/</u> | 545 | 92 | April-Sept. | 829 |
| Belt near Monarch, Montana | 152 | 122 | April-Sept. | 122 |
| Marias near Shelby, Montana <u>5/</u> | 500 | 89 | April-Sept. | 1,216 |
| Missouri near Landusky, Montana <u>6/</u> | 5,450 | 115 | April-Sept. | |
| near Williston, North Dakota <u>7/</u> | 14,800 | 126 | April-Sept. | |
| S. Fk. Musselshell above Martinsdale, Montana | 58 | 116 | April-Sept. | |
| Milk at Eastern Crossing, Montana | 235 | 82 | March-Sept. | |
| Yellowstone at Yellowstone Lake Outlet, Wyo. | 995 | 121 | April-Oct. | 844 |
| at Corwin Springs, Montana | 2,600 | 130 | April-Sept. | 2,159 |
| at Miles City, Montana <u>8/</u> | 8,200 | 129 | April-Sept. | |
| Clarks Fork near Belfry, Montana | 840 | 138 | April-Sept. | |
| Shoshone below Buffalo Bill Res., Wyo. <u>9/</u> | 1,020 | 133 | April-Sept. | 917 |
| Wind near Dubois, Wyoming | 130 | 127 | April-Sept. | |
| at Riverton, Wyoming <u>10/</u> | 800 | 120 | April-Sept. | |
| below Boysen Res., Wyoming <u>11/</u> | 1,120 | 111 | April-Sept. | |
| Bull Lake Creek near Lenore, Wyoming | 190 | 104 | April-Sept. | |
| Little Popo Agie near Lander, Wyoming | 47 | 99 | April-Sept. | |
| Tensleep near Tensleep, Wyoming | 72 | 91 | April-Sept. | |
| Medicine Lodge near Hyattville, Wyoming | 22 | 104 | April-Sept. | |
| Shell Creek near Shell, Wyoming | 90 | 123 | April-Sept. | |
| Big Horn near St. Xavier <u>8/</u> | 2,150 | 116 | April-Sept. | 2,497 |
| Tongue near Dayton, Wyoming | 150 | 133 | April-Sept. | 176 |
| No. Fork Powder near Hazelton, Wyoming | 12 | 120 | April-Sept. | 15 |
| PLATTE | | | | |
| North Platte at Sinclair, Wyoming | 580 | 90 | April-Sept. | 789 |
| Encampment near Encampment, Wyoming | 135 | 96 | April-Sept. | 192 |
| Laramie & Pioneer Canal, nr Woods, Wyo. <u>12/</u> | 118 | 93 | April-Sept. | 124 |
| Big Thompson at Drake, Colorado <u>13/</u> | | | April-Sept. | |
| Clear at Golden, Colorado <u>14/</u> | | | April-Sept. | |
| St. Vrain at Lyons, Colorado <u>15/</u> | | | April-Sept. | |
| Cache LaPoudre near Fort Collins, Colorado <u>16/</u> | | | April-Sept. | |
| ARKANSAS | | | | |
| Arkansas at Salida, Colorado <u>17/</u> | | | April-Sept. | |
| Cucharas near LaVeta, Colorado | | | April-Sept. | |
| Purgatoire at Trinidad, Colorado | | | April-Sept. | |
| RIO GRANDE | | | | |
| Rio Grande near Del Norte, Colorado <u>18/</u> | | | April-Sept. | |
| at Otowi Bridge, New Mexico <u>19/</u> | | | March-July | |
| Conejos near Mogote, Colorado <u>20/</u> | | | April-Sept. | |
| El Vado Res., Inflow, New Mexico | | | March-July | |
| Pecos at Pecos, New Mexico | | | March-July | |
| UPPER COLORADO | | | | |
| Colorado, Grandby Res., Inflow, Colorado <u>21/</u> | | | April-Sept. | |
| near Dotsero, Colorado <u>22/</u> | | | April-Sept. | |
| near Cameo, Colorado <u>23/</u> | | | April-Sept. | |
| near Cisco, Utah <u>24/</u> | 2,125 | 75 | April-July | 4,038 |
| Lake Powell Inflow, Arizona <u>25/</u> | 5,596 | 81 | April-July | 10,407 |
| Roaring Fork at Glenwood Springs, Colorado <u>26/</u> | | | April-Sept. | |
| Uncompahgre at Colona, Colorado | | | April-Sept. | |
| Gunnison, Blue Mesa Res. Inflow, Colorado <u>27/</u> | | | April-Sept. | |

Forecasts in California provided by Department of Water Resources.
Average is for 1958-72 period except California. California is computed for 1921-70 period.
Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

SELECTED STREAMFLOW FORECASTS FEBRUARY 1, 1976

| STREAM AND STATION | FORECASTS THIS YEAR | | Forecast Period | Last Year's Flow In (1,000 A.F.) |
|---|-------------------------|-----------------------|-----------------|--|
| | Flow In (1,000 A.F.) | Percent of Average | | |
| UPPER COLORADO (continued) | | | | |
| Gunnison, near Grand Junction, Colorado <u>28/</u> | | | April-Sept. | |
| Dolores at Dolores, Colorado | | | April-Sept. | |
| Green at Warren Bridge, Wyoming | 345 | 106 | April-Sept. | 335 |
| at Green River, Wyoming <u>29/</u> | 1,065 | 108 | April-Sept. | 1,167 |
| Flaming Gorge Res. Inflow, Utah <u>27/</u> | 1,204 | 103 | April-July | 1,635 |
| at Green River, Utah <u>30/</u> | 2,574 | 91 | April-July | 4,082 |
| Big Sandy near Big Sandy, Wyoming | 51 | 89 | April-Sept. | 72 |
| Yampa at Steamboat Springs, Colorado | | | April-Sept. | |
| near Maybell, Colorado | | | April-Sept. | |
| Little Snake near Dixon, Wyoming | 330 | 110 | April-Sept. | |
| White near Meeker, Colorado | | | April-Sept. | |
| Strawberry at Duchesne, Utah <u>40/</u> | 52 | 93 | April-July | 65 |
| Duchesne near Tabiona, Utah <u>31/</u> | 80 | 77 | April-July | |
| at Randlett, Utah <u>40/</u> | 150 | 68 | April-July | |
| Lakefork below Moon Lake, Utah <u>32/</u> | 50 | 72 | April-July | 82 |
| Uinta near Neola, Utah | 54 | 61 | April-July | 99 |
| Whiterocks near Whiterocks, Utah | 37 | 64 | April-July | 79 |
| Price, Scofield Res. Inflow, Utah <u>33/</u> | 34 | 100 | April-July | |
| Cottonwood near Orangeville, Utah <u>34/</u> | 42 | 91 | April-July | |
| San Juan, Navajo Res. Inflow, New Mexico <u>27/</u> | 450 | 75 | April-July | |
| near Bluff, Utah <u>35/</u> | 651 | 78 | April-July | |
| Animas at Durango, Colorado | | | April-Sept. | |
| LOWER COLORADO | | | | |
| Virgin near Virgin, Utah | 27 | 56 | April-June | 46 |
| Little Colorado above Lyman, Arizona | 6 | 49 | January-June | 17 |
| Gila near Solomon, Arizona | 50 | 32 | January-May | |
| Frisco at Clifton, Arizona | 25 | 32 | January-May | |
| Salt at Intake, Arizona | 142 | 44 | January-May | 442 |
| Tonto above Roosevelt, Arizona | 8 | 17 | January-May | 46 |
| Verde above Horseshoe Dam, Arizona | 116 | 61 | January-May | 183 |
| GREAT BASIN | | | | |
| Bear at Utah-Wyo. State Line | 108 | 97 | April-July | 140 |
| at Harer, Idaho | 230 | 85 | April-Sept. | |
| Smith's Fork near Border, Wyoming | 104 | 90 | April-Sept. | 134 |
| Thomas Fork near Wyo.-Ida. State Line | 27 | 83 | April-Sept. | 42 |
| Logan near Logan, Utah <u>36/</u> | 113 | 100 | April-July | 140 |
| Ogden, Pine View Res. Inflow, Utah <u>27/</u> | 114 | 104 | April-June | 176 |
| Weber near Oakley, Utah | 98 | 98 | April-June | 104 |
| Provo near Hailstone, Utah <u>37/</u> | 100 | 98 | April-June | |
| Strawberry Res. Inflow, Utah | 53 | 118 | April-June | |
| Utah Lake Net Inflow, Utah | 215 | 103 | April-July | |
| Big Cottonwood near Salt Lake City, Utah | 37 | 103 | April-July | |
| Beaver near Beaver, Utah | 14 | 68 | April-July | 18 |
| Sevier near Hatch, Utah | 22 | 54 | April-July | 35 |
| near Gunnison, Utah | 32 | 82 | April-July | 55 |
| So. Fork Humboldt near Elko, Nevada | | | | |
| Humboldt at Palisades, Nevada | 170 | 88 | April-July | 475 |
| Truckee at Farad, California <u>38/</u> | | | | |
| East Carson near Gardnerville, Nevada | | | | |
| West Walker near Coleville, California | 100 | 69 | April-July | 184 |
| Donner und Blitzen near Frenchglen, Oregon | 54 | 98 | March-July | |
| Silvies near Burns, Oregon | 93 | 99 | March-July | |
| Chewaucan near Paisley, Oregon | 62 | 71 | March-July | 98 |
| Deep above Adel, Oregon | 47 | 60 | March-July | |
| Bidwell near Ft. Bidwell, California | | | | |
| Owens below Long Valley Res., California | 28 | 45 | April-July | 56 |
| West Carson at Woodsfords, California | | | | |
| East Walker near Bridgeport, California <u>39/</u> | | | | |

Forecasts in California provided by Department of Water Resources.
Average is for 1958-72 period except California. California is computed for 1921-70 period.
Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

SELECTED STREAMFLOW FORECASTS FEBRUARY 1, 1976

| STREAM AND STATION | FORECASTS THIS YEAR | | Forecast Period | Last Year's Flow In (1,000 A.F.) |
|--|-------------------------|-----------------------|-----------------|--|
| | Flow In (1,000 A.F.) | Percent of Average | | |
| UPPER COLUMBIA | | | | |
| Columbia at Birchbank, British Columbia <u>40/</u> | 46,500 | 100 | April-Sept. | 41,188 |
| at Grand Coulee, Washington <u>40/</u> | 71,200 | 103 | April-Sept. | 66,512 |
| below Rock Island, Washington | 78,300 | 104 | April-Sept. | 74,143 |
| Kootenai near Libby, Montana | 7,150 | 96 | April-Sept. | 6,388 |
| at Leonia, Idaho | 8,900 | 98 | April-Sept. | 8,093 |
| Blackfoot near Bonner, Montana | 1,300 | 126 | April-Sept. | 1,371 |
| So. Fk. Flathead nr Columbia Falls, Montana <u>40/</u> | 2,200 | 92 | April-Sept. | 2,520 |
| Flathead at Columbia Falls, Montana <u>40/</u> | 5,850 | 91 | April-Sept. | 6,794 |
| near Polson, Montana <u>40/</u> | 7,050 | 92 | April-Sept. | 7,895 |
| Clark Fork above Missoula, Montana | 2,300 | 126 | April-Sept. | 2,722 |
| near Plains, Montana <u>40/</u> | 13,000 | 103 | April-Sept. | 14,101 |
| at Whitehorse Rapids, Idaho | 14,400 | 102 | April-Sept. | |
| Bitterroot near Darby, Montana | 750 | 128 | April-Sept. | 736 |
| Priest near Priest River, Idaho | | | | |
| Pend Oreille below Box Canyon, Washington | 16,500 | 103 | April-Sept. | 17,559 |
| Kettle near Laurier, Washington | 2,050 | 109 | April-Sept. | 1,921 |
| Spokane at Post Falls, Idaho | 2,700 | 90 | April-Sept. | |
| Similkameen near Nighthawk, Washington | 1,740 | 115 | April-Sept. | 1,409 |
| Okanogan near Tonasket, Washington | 2,070 | 120 | April-Sept. | 1,584 |
| Methow near Pateros, Washington | 1,240 | 120 | April-Sept. | |
| Stehekin at Stehekin, Washington | 975 | 108 | April-Sept. | |
| Chelan at Chelan, Washington <u>43/</u> | 1,430 | 114 | April-Sept. | 1,368 |
| Wenatchee at Peshastin, Washington | 2,090 | 117 | April-Sept. | 2,000 |
| SNAKE | | | | |
| SNAKE above Palisades Res., Wyoming <u>44/</u> | 3,200 | 122 | April-Sept. | 2,838 |
| near Heise, Idaho <u>45/</u> | 4,200 | 106 | April-Sept. | |
| near Blackfoot <u>46/</u> | | | | |
| at Weiser, Idaho | | | | |
| Grey's above Palisade, Wyoming | 358 | 92 | April-Sept. | 424 |
| Salt above Palisade, Wyoming | 305 | 84 | April-Sept. | 524 |
| Henry's Fork near Ashton, Idaho <u>47/</u> | | | | |
| Teton near St. Anthony, Idaho | | | | |
| Blackfoot Reservoir Inflow, Idaho | | | | |
| Big Lost near MacKay, Idaho <u>48/</u> | 125 | 68 | April-Sept. | |
| Portneuf at Topaz, Idaho | | | | |
| Salmon Falls Creek nr San Jacinto, Idaho | | | | |
| Big Wood, Inflow to Magic Res., Idaho <u>49/</u> | 200 | 66 | April-Sept. | |
| Bruneau near Hot Springs, Idaho | | | | |
| Boise near Boise, Idaho <u>50/</u> | 1,550 | 96 | April-Sept. | |
| Owyhee near Owyhee, Nevada <u>51/</u> | 58 | 85 | April-July | 144 |
| Owyhee Res. Net Inflow, Oregon <u>27/</u> | 460 | 90 | Feb.-July | 1,109 |
| Malheur near Drewsey, Oregon | 102 | 93 | Feb.-July | |
| Payette near Horseshoe Bend, Idaho <u>52/</u> | | | April-Sept. | |
| Weiser above Crane Creek, Idaho <u>40/</u> | | | | |
| Burnt near Hereford, Oregon <u>40/</u> | 49 | 103 | Feb.-July | |
| Powder near Sumpter, Oregon | 51 | 94 | April-July | |
| Eagle above Skull Creek, Oregon | 178 | 102 | April-July | |
| Imnaha at Imaha, Oregon | 292 | 95 | April-Sept. | |
| Salmon at Whitebird, Idaho | 6,900 | 99 | April-Sept. | |
| Lostine near Lostine, Oregon | 121 | 97 | April-Sept. | |
| Grand Ronde at LaGrande, Oregon | 205 | 104 | March-Sept. | 306 |
| Clearwater at Spalding, Idaho | 8,900 | 103 | April-Sept. | |
| LOWER COLUMBIA | | | | |
| Yakima at CleElum, Washington <u>53/</u> | 1,000 | 103 | April-Sept. | |
| near Parker, Washington <u>54/</u> | 1,760 | 102 | April-Sept. | |
| Naches near Naches, Washington <u>55/</u> | 900 | 101 | April-Sept. | |
| Walla Walla, So. Fk. near Milton, Oregon | 80 | 101 | March-Sept. | |

Forecasts in California provided by Department of Water Resources.
Average is for 1958-72 period except California. California is computed for 1921-70 period.
Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

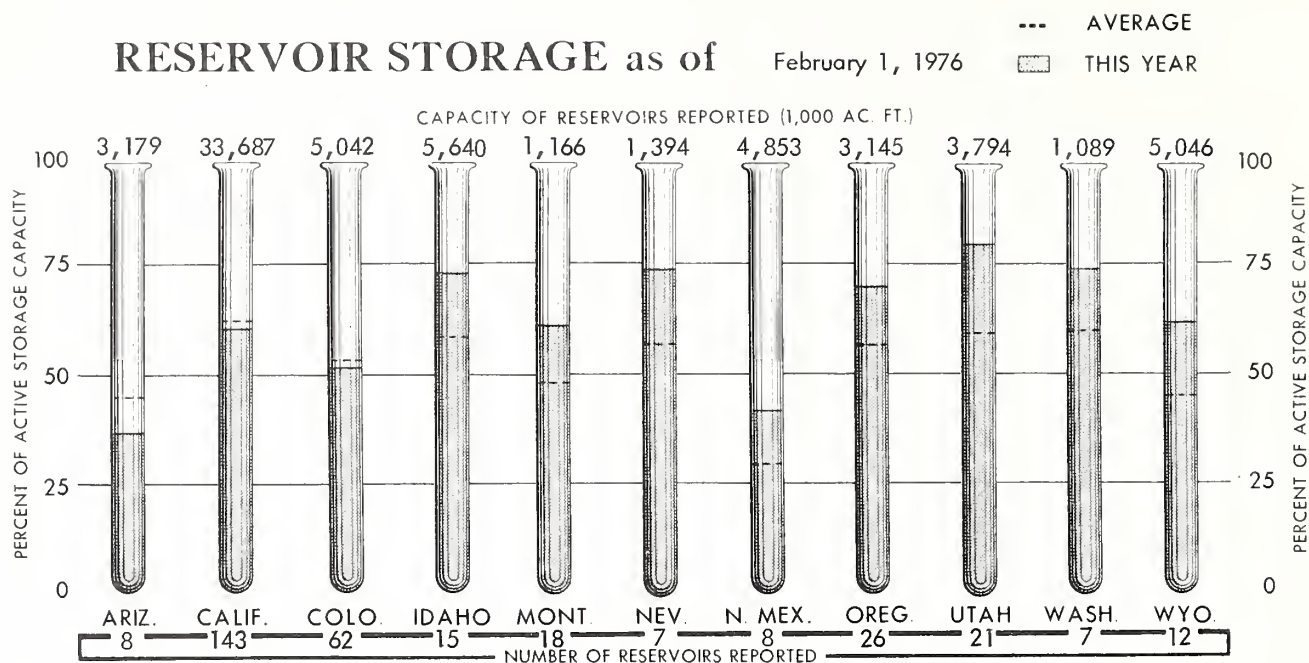
SELECTED STREAMFLOW FORECASTS FEBRUARY 1, 1976

| STREAM AND STATION | FORECASTS THIS YEAR | | Forecast Period | Last Year's Flow In (1,000 A.F.) |
|--|-------------------------|-----------------------|-----------------|--|
| | Flow In (1,000 A.F.) | Percent of Average | | |
| LOWER COLUMBIA (continued) | | | | |
| Umatilla at Pendleton, Oregon | 216 | 108 | March-Sept. | |
| John Day, Middle Fork at Ritter, Oregon | 126 | 98 | April-Sept. | |
| North Fork at Monument, Oregon | 662 | 102 | March-Sept. | |
| Crooked near Post, Oregon | 148 | 86 | Feb.-Sept. | |
| Deschutes at Benham Falls, Oregon <u>40/</u> | 382 | 106 | April-July | |
| Columbia at The Dalles, Oregon <u>40/</u> | 105,200 | 101 | April-Sept. | 109,012 |
| at The Dalles, Oregon <u>40/</u> | 89,000 | 99 | April-July | 94,328 |
| Hood near Tucker Bridge, Oregon <u>40/</u> | 257 | 90 | April-July | |
| McKenzie near Vida, Oregon | 1,067 | 103 | April-July | |
| Santiam, South, at Waterloo, Oregon | 536 | 95 | April-July | |
| North, at Mehama, Oregon <u>40/</u> | 765 | 100 | April-July | |
| Clackamas at Estacada, Oregon | 586 | 87 | April-July | |
| Willamette at Salem, Oregon <u>40/</u> | 4,660 | 106 | April-July | |
| Lewis at Ariel, Washington <u>56/</u> | 1,180 | 88 | April-Sept. | 1,196 |
| Cowlitz at Castle Rock, Washington <u>57/</u> | 2,910 | 105 | April-Sept. | 2,652 |
| NORTH PACIFIC COASTAL | | | | |
| Dungness near Sequim, Washington | 161 | 98 | April-Sept. | |
| Umpqua, No., near Toketee Falls, Oregon <u>40/</u> | 175 | 109 | April-Sept. | |
| Rogue at Raygold, Oregon | 943 | 106 | April-Sept. | 1,209 |
| Klamath Lake, Net Inflow, Oregon | 764 | 85 | Feb.-Sept. | 1,134 |
| Trinity at Lewiston, California | 410 | 66 | April-July | 895 |
| CALIFORNIA CENTRAL VALLEY <u>40/</u> | | | | |
| Sacramento, Inflow to Shasta, California | 1,385 | 78 | April-July | 2,369 |
| Feather near Oroville, California | 960 | 52 | April-July | 2,634 |
| Yuba at Smartville, California | 420 | 39 | April-July | 1,378 |
| American, Inflow to Folsom Res., Calif. | 420 | 32 | April-July | 1,648 |
| Cosumnes at Michigan Bar, California | 50 | 38 | April-July | 191 |
| Mokelumne, Inflow to Pardee Res., Calif. | 195 | 42 | April-July | 605 |
| Stanislaus, Inflow to Melones Res., Calif. | 290 | 40 | April-July | 932 |
| Tuolumne, Inflow to Don Pedro Res., Calif. | 520 | 42 | April-July | 1,490 |
| Merced, Inflow to Exchequer Res., Calif. | 270 | 44 | April-July | 817 |
| San Joaquin, Inflow to Millerton Lake, Calif. | 505 | 42 | April-July | 1,413 |
| Kings, Inflow to Pine Flat Res., California | 540 | 46 | April-July | 1,266 |
| Kaweah, Inflow to Terminus Res., California | 120 | 44 | April-July | 296 |
| Tule, Inflow to Success Res., California | 16 | 27 | April-July | 67 |
| Kern, Inflow to Isabella Res., California | 115 | 27 | April-July | 368 |
| ALASKA | | | | |
| Yukon at Eagle, Alaska | | | April-July | |
| at Ruby, Alaska | | | April-July | |
| Porcupine near Ft. Yukon, Alaska | | | April-July | |
| Salcha near Salchaket, Alaska | | | April-July | |
| Little Chena near Fairbanks, Alaska | | | April-July | |
| Chena at Fairbanks, Alaska | | | April-July | |
| Ship Creek near Anchorage, Alaska | | | April-July | |
| So. Fk. Campbell Cr. near Anchorage, Alaska | | | April-July | |

Forecasts in California provided by Department of Water Resources.
Average is for 1958-72 period except California. California is computed for 1921-70 period.
Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

RESERVOIR STORAGE as of February 1, 1976



only streams expected to be above normal during the snowmelt period. The Green is forecast to discharge 103 percent of its average into Flaming Gorge reservoir and the Little Snake is predicted to flow at 110 percent.

Elsewhere on the Upper Colorado streamflow amounts will be quite variable but generally below normal. In Utah the Duchesne is expected to yield 68 percent at Randlett. The Uinta and Whiterocks forecasts are 61 and 64 percent of normal, respectively. The San Juan river is forecast at 78 percent. The expected Colorado River inflow to Lake Powell is 81 percent of the 15-year average. However, current storage in the reservoir is excellent, as it now holds 238 percent of its normal contents.

Flows into the lower portion of the basin currently are forecast to be much below normal. The Salt, Verde, and Tonto combined flow for the January-May period is predicted to be only half the normal amount. The Little Colorado is also forecast to discharge only 50 percent of its average, while the Upper Gila is expected to flow at only one-third its normal rate.

Most reservoirs in the basin are at normal levels or above. The most notable exception is on the Verde River where the impoundments are only 21 percent of average. Salt River project reservoirs are currently at 93 percent of their normal February 1 levels.

GREAT BASIN

February 1 snow surveys revealed that the snowpack in the Sierra Nevada was one of the lightest on record. At Donner Summit the snowpack has been lighter only once (1963) in the past 54 years. Further east in Nevada and Utah the snowpack is more favorable, with near average conditions on the Humboldt, Provo, and Bear River drainages. There are areas of low snowpack in Utah, however, including the upper Sevier, at 52 percent, and the Ogden drainage which is 82 percent of average.

In Oregon the Lake County region has 75 percent of its normal snowpack, but the Harney Basin currently stands at 105 percent of its average.

Streamflow forecasts for the spring and summer snowmelt period are quite variable. The best outlook is in Utah. Inflows to Strawberry reservoir and Utah Lake are expected to be 118 percent and 103 percent of normal, respectively. Near average amounts are also expected from the upper Bear, Weber, and Provo Rivers. In Oregon normal yields are expected from the Donner und Blitzen and Silvies drainages. Below average runoff is forecast from the Thomas Fork in Wyoming, lower Bear and Sevier Rivers in Utah and the Humboldt of Nevada, all of which should range from 80 to 90 percent.

STORAGE IN LARGE RESERVOIRS

FEBRUARY 1, 1976

| BASIN AND NAME OF RESERVOIR | CAPACITY (1,000 A.F.) | STORAGE (1,000 A.F.) | STORAGE PERCENT AVERAGE | BASIN AND NAME OF RESERVOIR | CAPACITY (1,000 A.F.) | STORAGE (1,000 A.F.) | STORAGE PERCENT AVERAGE |
|--------------------------------|--------------------------|-------------------------|-------------------------------|--------------------------------|--------------------------|-------------------------|-------------------------------|
| UPPER MISSOURI | | | | UPPER COLUMBIA | | | |
| Belle Fourche | 185 | 94 | 107 | Chelan | 676 | 513 | 173 |
| Boysen | 550 | 319 | 110 | Coeur d'Alene | 225 | 169 | 122 |
| Buffalo Bill | 373 | 219 | 133 | Duncan | 1,400 | 597 | 192 |
| Canyon Ferry | 2,043 | 1,773 | 108 | Flathead | 1,791 | 1,249 | 100 |
| Fort Peck | 19,140 | 17,540 | 133 | Hungry Horse | 3,428 | 2,768 | 111 |
| Garrison | 24,790 | 19,443 | 135 | Kootenay | 787 | 619 | 96 |
| Hebgen | 377 | 288 | 142 | Lake Koocanusa | 5,694 | 2,450 | -- |
| Keyhole | 192 | 125 | 176 | Lower Arrow | 2,691 | 1,838 | 715 |
| Lake Francis Case | 5,816 | 3,145 | 98 | Noxon Rapids | 335 | 304 | 95 |
| Lake Sharpe | 1,900 | 1,788 | 104 | Pend Oreille | 1,155 | 486 | 121 |
| Oahe | 23,630 | 18,421 | 124 | Roosevelt | 5,232 | 5,116 | 144 |
| Tiber | 1,347 | 581 | 101 | Upper Arrow | 4,400 | 2,799 | 440 |
| Bighorn Lake | 1,356 | 863 | 110 | | | | |
| PLATTE | | | | LOWER COLUMBIA | | | |
| So. Platte in Colo. (30) | 1,085 | 761 | 105 | Cougar | 155 | 9 | 26 |
| City of Denver (7) | 622 | 481 | 103 | Detroit | 300 | 17 | 28 |
| Colo-Big Thompson (3) | 718 | 503 | 120 | Green Peter | 270 | 7 | 10 |
| Glendo | 784 | 352 | 112 | Hills Creek | 200 | 24 | 62 |
| Pathfinder | 1,016 | 819 | 240 | Lookout Point | 337 | 24 | 38 |
| Seminole | 1,010 | 612 | 156 | Prineville | 153 | 93 | 91 |
| | | | | Wickiup | 200 | 187 | 126 |
| | | | | Yakima Res. (5) | 1,066 | 784 | 126 |
| ARKANSAS | | | | SNAKE | | | |
| Conchas | 273 | 82 | 44 | American Falls | 1,125 | 931 | 149 |
| John Martin | 354 | 7 | 8 | Anderson Ranch | 423 | 277 | 108 |
| Turquoise | 130 | 52 | -- | Arrowrock | 287 | 278 | 116 |
| RIO GRANDE | | | | Brownlee | | | |
| Elephant Butte | 2,195 | 684 | 155 | Cascade | 653 | 458 | 134 |
| New Mexico Res. (4) | 578 | 199 | 280 | Dworshak | | | |
| UPPER COLORADO | | | | Jackson | 847 | 627 | 156 |
| Blue Mesa | 830 | 473 | 96 | Lucky Peak | 278 | 64 | 70 |
| Flaming Gorge | 3,749 | 3,329 | 203 | Owyhee | 715 | 622 | 152 |
| Navajo | 1,696 | 1,130 | 91 | Palisades | 1,200 | 970 | 124 |
| Powell | 25,002 | 20,023 | 238 | Warm Springs | 191 | 132 | 164 |
| Starvation | 165 | 144 | -- | | | | |
| LOWER COLORADO | | | | PACIFIC COASTAL | | | |
| Havasu | 619 | 543 | 100 | Clair Engle | 2,448 | 1,847 | 91 |
| Mead | 26,159 | 20,276 | 117 | Clear Lake | 440 | 287 | 140 |
| Mohave | 1,810 | 1,618 | 97 | Nacimiento | 350 | 291 | 157 |
| Salt River Res. (4) | 1,755 | 1,003 | 93 | Ross | 1,053 | 877 | 148 |
| San Carlos | 949 | 123 | 72 | Upper Klamath | 584 | 326 | 91 |
| Verde River Res. (2) | 318 | 27 | 21 | | | | |
| GREAT BASIN | | | | CALIFORNIA CENTRAL VALLEY | | | |
| Bear | 1,421 | 1,073 | 114 | Almanor | 1,308 | 653 | 89 |
| Lahontan | 291 | 205 | 113 | Berryessa | 1,602 | 1,348 | 87 |
| Rye Patch | 157 | 154 | 179 | Bullards Bar | 961 | 273 | 52 |
| Sevier Bridge | 236 | 154 | 186 | Folsom | 1,010 | 538 | 91 |
| Strawberry | 274 | 241 | 211 | Isabella | 570 | 170 | 89 |
| Tahoe | 732 | 499 | 117 | McClure | 1,026 | 611 | 114 |
| Utah | 884 | 921 | 164 | Millerton | 521 | 356 | 91 |
| Willard Bay | 193 | 159 | 144 | Oroville | 3,538 | 2,679 | 114 |
| | | | | Pine Flat | 1,002 | 481 | 79 |
| | | | | Shasta | 4,552 | 2,991 | 88 |

Reservoir Storage Data Provided by Bureau of Reclamation, Corps of Engineers, Geological Survey, and water using organizations. Data from California and British Columbia provided by Department of Water Resources and Department of Lands, Forests and Water Resources, respectively.

Deep Creek in Oregon is forecast to yield only 60 percent of its normal. The Beaver and upper Sevier River flows are now forecast to be 68 and 54 percent of normal. Streams flowing east from the Sierra Nevada are expected to yield much below normal quantities also. The west Walker and Owens are examples of these predicted low flows, at 69 and 45 percent.

Reservoir storage is good to excellent with carryover amounts as high as double the normal quantities. Water users whose supplies are supplemented by reservoir storage are expected to have adequate irrigation water this summer. Lake Tahoe is currently at 117 percent of normal, while Utah Lake is at 164 percent and Strawberry reservoir is nearly full and double its normal February 1 impoundment.

COLUMBIA BASIN

Early season rain and snow was heavy over much of the Columbia Basin. However, there has been almost no additional snowfall since mid-January. The upper Snake, Blackfoot and Bitterroot drainages in Wyoming and Montana currently have snowpacks well above normal. This condition also prevails in British Columbia on the Similkameen, Okanogan, and Kettle Rivers. The Umatilla River watershed in Oregon has a similarly heavy snowpack.

Some watersheds have light snowpacks, including the Cowlitz, Lewis and Colville Rivers in Washington. The Clackamas River snowpack is only three-fourths its normal amount and the Little Lost and Big Wood River watersheds in Idaho have only about 58 percent of their usual snowpack. Elsewhere within the basin snowpacks are generally near their 15-year average for February 1.

The Columbia River will flow at a rate of 101 percent of its average during the snowmelt period. This represents the combined flows of many streams with variable conditions. The best runoff will occur from the Bitterroot, Okanogan and Methow Rivers which will be in the range of 120 to 130 percent of normal. Most other upper basin rivers will flow at near average rates.

The Big Lost and Big Wood Rivers are forecast to discharge only two-thirds of their normal quantities. Other Idaho streams flowing into the Snake River will range from 90 to 105 percent of their normal flows.

Most lower Columbia tributaries are forecast to be near average. In Oregon, however, the Crooked, Clackamas and Hood Rivers are expected to yield between 85 and 90 percent of their averages. The Lewis River in Washington is also forecast to discharge 12 percent below normal.

Reservoir storage in the upper portion of the basin is very good with most impoundments well above their normal February 1 levels. The reverse is true along the lower river, however, where most reservoirs are below normal for this time of year.

CALIFORNIA

The California Department of Water Resources, coordinating agency for snow surveys and water supply forecasting in California, reports that as of February 1 water supply potentials for 1976 are only fair for most of the state. A three-month winter drought has resulted in some economic loss to cattlemen and dry farm operators. Water demands from surface storage, as well as ground water pumping, have increased as farmers in the Central Valley boosted preirrigation operations to offset lack of rainfall. Surface storage of carryover water supplies is about normal for this date, and no major deficiencies in areas served from these reservoirs are foreseen for 1976. Forecasts of April through July runoff, based on receipt of normal precipitation amounts for the remainder of the winter, now range from a low of 27 percent of normal for the Tule and Kern Rivers to 78 percent of normal for the Upper Sacramento River, inflow to Shasta Lake. Most streams in the Central Valley are forecasted to produce 40 to 60 percent of normal runoff for the April through July period.

Snow survey data shows that the water content of the mountain snowpack was far below average throughout the state on February 1. Snow water content was 50 percent of normal in the Sacramento River hydrographic area and only 40 percent of normal in the San Joaquin Valley watersheds. Statewide, the average is about 45 percent of normal for February 1.

The present snowpack amounts to only 15 percent of the total seasonal accumulation, which usually occurs about April 1. Therefore, should average amounts of snow accumulate during the remainder of the winter season, snow water content by April 1 would

be 50 percent of normal. This means that 250 percent of normal February and March snow accumulation will be needed to reverse the present dry trend and to produce a normal April 1 snowpack thus assuring a normal snow-melt runoff next spring and summer.

Precipitation since the last major storm in October has been far below normal. A high pressure system dominated the weather pattern over California through January and effectively held off the movement of storms into the state. By the end of January many minimum precipitation records had been broken as warm, springlike weather prevailed over valleys and mountains alike. January rainfall was zero throughout Southern California, and reached a high of only 30 percent of normal in the extreme northern part of the state.

Runoff has also been very meager with several streams setting new all-time low records. During January streamflow ranged from almost zero in the San Francisco Bay area to a high of 69 percent of normal in the Lahontan area. The statewide average runoff was about 30 percent of normal for the state. In the Central Valley, runoff for the four-month period has ranged from a low of 22 percent of normal for the Cosumnes River to a high of 69 percent of normal for the inflow to Shasta Lake.

Reservoir storage was near average throughout the state on February 1, based

on reports from operators of 143 reservoirs. In the Sacramento Valley, reservoirs were storing 90 percent of average supplies. San Joaquin Valley reservoirs were storing 105 percent of average contents. Colorado River storage projects, which store supplies for use in Southern California, are now holding almost 140 percent of average contents for this date.

ALASKA

Abnormally shallow snowpacks cover interior Alaska. In contrast, coastal areas in south central are near normal, while heavy snowpacks in the southeast portion of the state have been greatly reduced at low elevations by recent warm weather.

Snow courses measured about February 1 indicate snowfall has been one-half to two-thirds of the last ten-year average in the Tanana, Copper, and Upper Susitna drainages.

Volcanic outbursts by St. Augustine turned the white snow a brown color as 1/8 inch of ash fell over the Kenai Peninsula.



EXPLANATION of STREAMFLOW FORECASTS

All flows are observed flows except as adjusted for: 1/ Storage change in Lake Sherburne. 2/ Storage change in Lima and Clark Canyon reservoirs. 3/ Storage change in Hebgen Lake. 4/ Storage change in Gibson Reservoir and measured diversions. 5/ Storage change in Two Medicine, Four Horns, Lake Francis and Swift reservoirs. 6/ Storage change in Canyon Ferry and Tiber reservoirs. 7/ Changes as indicated in (6/), (8/), plus storage change in Fort Peck. 8/ Storage change in Boysen, Buffalo Bill, Bull Lake and Yellowtail reservoirs. 9/ Storage change in Buffalo Bill Reservoir plus Heart Mountain diversion. 10/ Storage change in Pilot Butte and Bull Lake reservoirs plus Wyoming canal diversion.

11/ Changes indicated in (10/) plus storage change in Boysen Reservoir. 12/ Plus diversions to Cache LaPoudre. 13/ Plus by-pass to power plants. 14/ Minus diversion thru Gumlick Tunnel. 15/ Storage change in Price Reservoir. 16/ Minus diversions from North Platte, Laramie and Colorado rivers plus measured diversions above station. 17/ Storage change in Clear Creek, Twin Lakes and Turquoise reservoirs minus diversions from Colorado River. 18/ Storage change in Rio Grande, Santa Maria and Continental reservoirs. 19/ Storage change in El Vado and Abiquiu reservoirs. 20/ Storage change in Platoro Reservoir.

21/ Storage change in Grandby Reservoir as furnished by U.S.B.R. plus diversions by Adams Tunnel and Grand River Ditch. 22/ Changes as indicated in (21/) plus diversions thru Roberts, Gumlick and Moffat tunnels and storage change in Dillon, Homestake, Williams Fork, Green Mountain and Willow Creek reservoirs. 23/ Changes indicated in (22/) and (26/). 24/ Storage change in Blue Mesa Reservoir. 25/ Changes indicated in (24/), (30/) and (35/) and storage change in Lake Powell. 26/ Diversions to Arkansas River plus storage change in Ruedi Reservoir. 27/ (Inflow record as computed by U. S. Bureau of Reclamation.) 28/ Storage change in Taylor, Blue Mesa and Morrow Point reservoirs. 29/ Storage change in Fontenelle Reservoir. 30/ Storage change in Flaming Gorge Reservoir.

31/ Plus diversion through Duchesne Tunnel. 32/ Storage change in Moon Lake Reservoir. 33/ Storage change in Scofield Reservoir. 34/ Storage change in Joe's Valley Reservoir. 35/ Storage change in Navajo Reservoir. 36/ Plus U. P. & L. Co. tailrace and Logan, Hyde Park and Smithfield canals. 37/ Minus diversions thru Duchesne Tunnel and Weber-Provo Canal. 38/ Storage change in Lake Tahoe and Boca reservoirs (Forecast by Truckee Basin Committee.) 39/ Storage change in Bridgeport Reservoir. 40/ Corrected for major upstream impairments -- represents simulated natural flow conditions.

41/ Storage change in Priest Lake. 42/ Storage change in Coeur d'Alene Lake and diversions by Spokane Valley Farms Co. and Rathrum Prairie canals. 43/ Storage change in Lake Chelan. 44/ Storage change in Jackson Lake. 45/ Storage change in Jackson Lake and Palisade reservoirs. 46/ Storage change in Jackson Lake, Palisades, Island Park, Henry's Lake, Grassy Lake plus diversions between Heise and Blackfoot. 47/ Storage change in Henry's Lake and Island Park reservoirs. 48/ Storage change in MacKay Reservoir and diversion in Sharp Ditch. 49/ Combined flow Big Wood near Bellevue and Camas Creek near Blaine. 50/ Storage change in Arrowrock, Anderson Ranch and Lucky Peak reservoirs.

51/ Storage change in Wild Horse Reservoir. 52/ Storage change in Cascade and Deadwood reservoirs. 53/ Storage change in Keechelus, Kachess and CleElum reservoirs plus diversion by Kittitas Canal. 54/ Changes indicated in (52/) plus storage change in Bumping and Rimrock Lakes plus diversion by Roza, Union Gao, New Reservation, Old Reservation and Sunrise canals. 55/ Storage change in Bumping and Rimrock lakes and diversions by Tieton, Selah Valley, Wapatox canals and City of Yakima. 56/ Storage change in Merwin, Yale and Swift reservoirs. 57/ Storage change in Mayfield Reservoir.

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